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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

HO, ALLEN C

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 10/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/731,335

Applicant(s)

THAYER, DALE

Examiner

Allen C. Ho

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-15 and 26-34 is/are allowed.
- 6) ☒ Claim(s) 16-18 and 20-25 is/are rejected.
- 7) ☒ Claim(s) 19, 26 and 34 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

1. Claim 26 is objected to because of the following informalities: line 7, "for" should be replaced by --of--. Appropriate correction is required.
2. Claim 34 is objected to because of the following informalities: line 1, --for-- should be inserted after "method". Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 16-18 and 21-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Baker *et al.* (U. S. Patent No. 4,926,452).

Baker *et al.* disclosed an apparatus for acquiring off-axis x-ray images of a plurality of regions of interest, comprising: a non-steerable source (20) of radiation that produces a beam; an x-y-z table (230) coupled to an encoder (265) to support at least a subset of the plurality of regions of interest; an x-ray detector (30) located to receive portions of the beam that pass through the subset and to simultaneously produce an electronic representation of an image for each region of interest in the subset; wherein at least one of the source, the surface, and the detector may be moveable to position the regions of interest within the beam.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baker *et al.* (U.S. Patent No. 4,926,452) as applied to claim 16 above.

Baker *et al.* disclosed an apparatus for acquiring off-axis x-ray images of a plurality of regions of interest, comprising: a non-steerable source (20) of radiation that produces a beam; an x-y-z table (230) coupled to an encoder (265) to support at least a subset of the plurality of regions of interest; an x-ray detector (30) located to receive portions of the beam that pass through the subset and to simultaneously produce an electronic representation of an image for each region of interest in the subset; wherein at least one of the source, the table, and the detector may be moveable to position the regions of interest within the beam. The apparatus is capable of producing laminographs in different planes (Figs, 2a-2d) by displacing the table along the z-axis.

However, although Baker disclosed that the table is movable along the z-axis, this reference does not teach that at least one of the source and the detector is movable along the z-axis.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to move one of the source and the detector along the z-axis, since moving the table is equivalent to moving the source and the detector relative to the table along the z-axis.

*Allowable Subject Matter*

7. Claim 19 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

The allowable subject matter in claim 19 refers to the apparatus of claim 18 wherein the positional accuracy of the table is better than about  $\pm 2$  pixels.

9. Claims 1-12, 13-15, 26-30, 31-33, and 34 are allowed.

10. The following is an examiner's statement of reasons for allowance:

The allowable subject matter in claims 1-12 refers to an apparatus for acquiring off-axis images of a plurality of regions of interest, comprising: a source of radiation, the source producing a beam of radiation; a surface to support at least a subset of the plurality of regions of interest; and an x-ray detector located to simultaneously receive portions of the beam that have passed through the subset of the plurality of regions of interest, the x-ray detector producing from the received portions of the beam a plurality of discrete images, each of the plurality of discrete images being associated with a region of interest in the subset of the plurality of regions of interest; wherein at least one of the source, the surface, and the detector may be moveable to position the regions of interest within the beam.

The allowable subject matter in claims 13-15 refers to a method for acquiring off-axis x-ray image data for a plurality of regions of interest, comprising the steps of: locating the plurality of regions of interest within a beam of radiation, at least a portion of the beam passing through

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the regions of interest; simultaneously detecting the portion of the beam for the plurality of regions of interest and producing a plurality of discrete image data, each of the plurality of discrete image data corresponding to each of the regions of interest; adjusting the location of the plurality of regions of interest, at least a subset of the plurality of regions of interest remaining within the beam; repeating the step of simultaneously detecting and producing image data; and combining image data for at least one region of interest to generate a tomosynthetic image of the region of interest.

The allowable subject matter in claims 26-30 refers to an apparatus for acquiring off-axis x-ray images of test objects comprising: an x-ray source for producing a steerable electron beam from a number of different positions along a horizontal path perpendicular to a vertical axis, each position being at an angle from the vertical axis; and a high-resolution detector positioned to receive x-rays that are transmitted through at least two regions of interest of the test object from each of the positions and to produce electronic representations of acquired off-axis images corresponding to the regions of interest.

The allowable subject matter in claims 31-33 refers to a method for simultaneously acquiring a plurality of off-axis x-ray images comprising: placing a test object with at least two regions of interest on an inspection plane; directing x-ray beams to the regions of interest, the x-ray beams being directed off-axis with respect to a vertical axis through the inspection plane; receiving on a detector x-rays that are transmitted through the regions of interest; and simultaneously producing electronic representations of acquired off-axis images corresponding to the regions of interest.

The allowable subject matter in claim 34 refers to a method for acquiring a plurality of off-axis x-ray images comprising: placing a test object with at least two regions of interest on an inspection plane; producing a steerable x-ray beam from a number of different positions along a horizontal path perpendicular to a vertical axis; directing an x-ray beam to a first region of interest; receiving on a detector x-rays that are transmitted through the first region of interest; directing an x-ray beam to a second region of interest; receiving on the detector x-rays that are transmitted through the second region of interest; and producing electronic representation of acquired off-axis images corresponding to the regions of interest.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### *Response to Arguments*

11. Applicant's arguments filed 09 July 2002 have been fully considered but they are not persuasive.

12. In response to applicant's arguments, the recitation off-axis in claim 16 has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See

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*In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

13. In response to applicant's argument that the Baker reference does not disclose a non-steerable source of radiation, the examiner would like to direct the applicant's attention to Fig. 1, which clearly shows a non-steerable source of radiation (20). The term "non-steerable", as defined by the applicant, refers to a source that lacks the capability to direct an electron beam within the source to various locations on a target anode (Page 3, lines 6-10).

### *Conclusion*

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- (1) Bowles (U. S. Patent No. 5,594,770) describes a method and apparatus for imaging obscured areas of a test object.
- (2) Baker *et al.* (U. S. Patent No. 5,259,012) describe a laminography system with electromagnetically directed multipath radiation source.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (703) 308-6189. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached at (703) 305-3492. The fax phone numbers for the




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organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

Allen C. Ho  
Examiner  
Art Unit 2882

ACH  
October 24, 2002

  
ROBERT H. KIM  
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